

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA



FILED
9-19-14
03:16 PM

Order Instituting Rulemaking into Policies to
Promote a Partnership Framework between
Energy Investor Owned Utilities and the
Water Sector to Promote Water-Energy
Nexus Programs.

Rulemaking 13-12-011
(Filed December 19, 2013)

**COMMENTS OF THE OFFICE OF RATEPAYER ADVOCATES
ON THE ORDER INSTITUTING RULEMAKING
JULY 1, 2014 WORKSHOP AND WORKSHOP REPORT**

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September 19, 2014

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking into Policies to Promote a Partnership Framework between Energy Investor Owned Utilities and the Water Sector to Promote Water-Energy Nexus Programs.

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I. INTRODUCTION

On August 29, 2014, the Administrative Law Judge to Rulemaking (“R.”) 13-12-011 issued a ruling seeking comments on the July 1, 2014 workshop (“workshop”) in which a proposal was made for the determination of marginal water supply for use in an embedded energy cost calculator (“ruling”).¹ As an attachment, the ruling included a Workshop Report on the Water Energy Nexus (“Workshop Report”). Pursuant to the instructions in the ruling, ORA submits its comments on the workshop and report herein. ORA’s comments and recommendations are summarized as follows, and detailed immediately below:

- a. Some assumptions and conclusions regarding avoided water system costs should be reconsidered, clarified, or both.**
- b. To facilitate voluntary partnerships, greater clarity and greater flexibility should be provided regarding the Avoided Water Capacity Cost Model and the Avoided Embedded Energy Model.**
- c. ORA maintains the recommendations expressed in its Comments on the April 25, 2014 Workshop Report.²**

¹ See “Administrative Law Judge’s Ruling Seeking Post-Workshop Comments on July 1, 2014 Proposal for Determination of Marginal Water Supply for Use in Embedded Energy Cost Calculator”.

² Office of Ratepayer Advocates’ Comments on the OIR April 25, 2014 Workshop, Project Coordination Group Presentation, and Workshop Report”, filed August 15, 2014. (“ORA April 25, 2014 Workshop Comments”).

II. DISCUSSION

a. Some assumptions and conclusions regarding avoided water system costs should be reconsidered, clarified, or both.

The Avoided Embedded Energy Model and the Avoided Water Capacity Model may be used to facilitate a variety of voluntary partnerships throughout the state.³ For the calculator to effectively facilitate voluntary partnerships, the partnering entities will need to have confidence in the assumptions that go into the calculator in order to rely on the outputs. Therefore, the assumptions relied upon must be transparent, and the conclusions and outputs of the calculator must be as accurate as possible. Towards this end, ORA requests that four specific assumptions and conclusions regarding avoided water system costs be reconsidered or clarified, as discussed in this section.

1. Avoided water distribution capacity costs for potable water projects and non-potable recycled water projects should be distinguished, with differing avoided costs applied as necessary.

The Workshop Report states that “Navigant proposes that we conclude that avoided water distribution systems capacity costs are fixed costs in both the short- and long-run.”⁴ This conclusion is based on three findings: significantly differing cost structures from region to region, decreased per capita usage on distribution systems, and distribution system investment being driven by interconnectedness of customers and not demand.

These findings seem plausible for potable water systems; however, both the findings and the conclusion regarding fixed distribution capacity costs are flawed in the case of recycled water projects. Currently, most recycled water projects in the state involve using recycled water for non-potable uses. These projects require a separate distribution system from the potable water system, often referred to as “purple pipe” distribution systems (due to the color of the distributions system pipes). A new non-potable recycled water system often requires a significant distribution system investment due to the need for this separate purple pipe infrastructure, including installing new pumps, mains, and service connections. Expanding existing recycled water systems requires similar upgrades. In contrast, potable water projects would generally not require such extensive distribution system upgrades. Therefore, the costs (and avoided costs) for distribution system capacity is not the same for recycled

³ R.13-12-011, Ordering Paragraph 1.

⁴ Workshop Report p. 9.

water projects and potable water projects. Given that previous analysis showed recycled water to be the marginal supply for a number of regions in the state,⁵ ORA recommends that avoided water distribution capacity costs be analyzed separately for recycled water projects and potable water projects, and assigned different values as necessary.

2. The avoided cost calculator should provide the option to choose non-potable vs. potable recycled water as the marginal water supply to account for differing avoided water capacity costs.

It is possible that future recycled water projects may increasingly be indirect potable reuse or direct potable reuse. These recycled water projects would be more likely to make use of existing potable distribution systems, and may have differing avoided distribution costs and avoided capacity costs than non-potable recycled water projects. However, potable vs. non-potable recycled water projects were not analyzed separately in the avoided water capacity costs study. Non-potable recycled water projects should be distinguished from direct and indirect potable recycled water projects, with differing avoided water capacity costs as necessary. The avoided cost calculator should provide the option to choose non-potable vs. potable recycled water as the marginal water supply to account for these differing avoided water capacity costs.

3. Collecting and analyzing additional data for regions with limited existing data sets would increase confidence that the avoided cost inputs to the model are representative for those regions.

Figure 1 of Attachment C of the Workshop Report shows the Regional Distribution of All Cost Data Sources analyzed for this study.⁶ Of the ten hydrologic regions, in three of the regions (North Lahontan, South Lahontan and Colorado River) cost data was analyzed for only one data source per region, and for two of the regions (North Coast and Tulare Lake) cost data was analyzed for two data sources per region. ORA is concerned that conclusions have been drawn from such a limited data set for five of the ten regions. With this limited data set, it is unclear if the cost data is representative of avoided cost trends in these regions. Collecting and analyzing additional data for the regions listed would promote partnerships by providing increased assurance to the partnering

⁵ See p. 7 of the April 25, 2014 Workshop Report.

⁶ At p. 64 of the Workshop Report.

entities that the avoided cost inputs to the model are representative for those regions.

4. Additional clarification and justification is needed before adopting the weighted averages of the observed facilities as the capital and O&M avoided capacity costs for each marginal supply. The large range in capital and O&M costs presented for each type of marginal supply emphasizes the need for flexible avoided cost tools.

Tables 1 - 10 in Attachment C of the Workshop Report summarize data for project costs for each type of marginal supply analyzed.⁷ The recommended capital and O&M costs are weighted averages of these project costs.⁸ For each marginal supply, there is a large range of project costs. For example, the data summarized in Table 3 for brackish groundwater desalination plants shows a capital cost range of \$3.52 - \$21.50/MGD. Table 7 shows a capital cost range of \$0.45 - \$8.79/MGD, a 20-fold difference. These examples are typical of the ranges of data presented in each table.

The Workshop Report does not provide a rationale for why the recommended capital and O&M costs are the weighted averages of the observed facilities. From the data presented, it is not clear why the weighted average of projects analyzed is an appropriate way to set values for avoided costs of water supply. Additional clarification and justification for this conclusion is warranted and, if necessary, the weighted average method may need to be revisited.

The large range in capital and O&M costs presented for each type of marginal supply further emphasizes the need for user-defined inputs in the avoided cost tools under development.² Flexible tools with user-defined inputs are necessary for project partners to move from region-wide, general assumptions to specific inputs that more accurately represent the conditions of the partnering water entity. Providing the flexibility for user-defined inputs within the tools will promote partnerships by increasing confidence that the model outputs are relevant to the specific partnership projects pursued by Energy IOUs and Water Entities.

⁷ At p.67-82 of the Workshop Report.

⁸ At p. 65, the Workshop Report states: "Recommended capital and O&M costs are weighted averages of observed facilities. Averages were weighted by total capacity (in MGD)."

² As discussed on p. 2-3 of ORA April 25, 2014 Workshop Comments.

- b. To facilitate voluntary partnerships, greater clarity and greater flexibility should be provided regarding the Avoided Water Capacity Cost Model and the Avoided Embedded Energy Model.**

Attachment D of the Workshop Report provides additional information regarding the model and calculators that Navigant is developing, including an influence diagram. Navigant is developing two new tools as a part of this project: 1) the Avoided Water Capacity Cost Model, and 2) the Avoided Embedded Energy Model.¹⁰ The additional information provided in the influence diagrams, including the documentation of which inputs will be user-editable, user-defined, or fixed assumptions, is appreciated.

As discussed in the above section, it is likely that these two new tools will be used state-wide to assess a variety of voluntary partnerships. Therefore, it is essential that the tools maintain flexibility and transparency to facilitate these voluntary partnerships. Additional clarification should be provided regarding these two new tools, and the flexibility of the tools increased. Specifically:

- 1. The “average supply mix” for water entities should not be a fixed assumption.**

Supply mix can vary widely within a given hydrologic region, and should be a user-defined or user-editable input, not a fixed assumption.

- 2. The exclusive use of the extrinsic marginal water supply to calculate the IOU avoided embedded energy cost should not be a fixed assumption.**

As discussed in more detail in ORA’s Comments on the April 25, 2014 Workshop Report, ORA is concerned with the consultant’s assumption that for avoided marginal supply, the “resource balance year” occurs at year zero.¹¹ Based on the information presented in Attachment D, the resource balance year assumption appears to be a fixed assumption, with no ability to edit for the purpose of a sensitivity analysis, or to input utility-specific information. This results in the exclusive use of the extrinsic marginal water supply to calculate the IOU avoided embedded energy cost. This is a questionable assumption, which, when altered, can significantly alter the output of the model. This should therefore be a

¹⁰ Workshop Report Attachment D, p. 2.

¹¹ As discussed on p. 3 of the ORA April 25, 2014 Workshop Comments.

user-defined or user-editable input, not a fixed assumption. To reiterate ORA's Comments on the April 25, 2014 Workshop Report, ORA recommends using intrinsic supplies to determine short-term avoided costs, and extrinsic supplies to determine long-term avoided costs.

3. It is unclear where and how the short term and long term marginal supplies will be distinguished and accounted for in the tools. These fields should not be fixed assumptions.

As discussed in more detail in ORA's Comments on the April 25, 2014 Workshop Report, it is unclear where and how the short term and long term marginal supplies will be distinguished and accounted for in the tools being developed. This should be clarified, and these fields should be user-defined or user-editable.

4. It does not appear that the average embedded energy savings will be used to calculate the IOU avoided embedded energy cost, and is unclear if and how this value will be used.

According to the influence diagram, the average IOU energy intensity applicable to a given measure (for all water system components) is used to calculate the average embedded energy savings. However, it appears from the diagram that neither of these values will be used to determine the IOU avoided embedded energy costs. It is unclear from the diagram if and how the average embedded energy savings will be used in the avoided costs model. This should be clarified.

c. ORA maintains the recommendations expressed in its Comments on the April 25, 2014 Workshop Report.

ORA maintains the recommendations expressed in its comments on the April Workshop Report,¹² including the following:

- i. The choice of assumptions used in developing the avoided costs calculator can significantly influence cost-benefit results. Therefore the calculator should be flexible enough to allow for project partners to move from region-wide, general assumptions to vetted, water entity-specific assumptions that would most accurately represent the conditions of the partnering water entity.
- ii. Some policy assumptions that Navigant proposes to use in the Avoided Costs Calculator should be reconsidered, clarified, or both.

¹² ORA April 25, 2014 Workshop Comments.

- iii. So that parties can provide effective feedback on the conclusions regarding the marginal supply for each hydrologic region, a more detailed explanation providing the bases and rationales supporting those conclusions is necessary. Conclusions on the marginal supply of water should be fully vetted within this rulemaking.
- iv. Navigant's schedule in preparing the technical tool for calculating avoided costs should match the pace of the proceeding. This is necessary to allow incorporation of parties' comments, which should be summarized in workshop reports, and tracked via matrix or other tracking mechanism.

Respectfully submitted,

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September 19, 2014